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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/051,321 | 01/18/2002 | Santosh C. Lolayekar | E003 - 1000US1 | 7045 |
| 48789 | 7590 | 07/20/2006 | EXAMINER | |
| LAW OFFICES OF BARRY N. YOUNG 260 SHERIDAN AVENUE SUITE 410 PALO ALTO, CA 94306-2047 | | | REFAI, RAMSEY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2152 | |

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/051,321 | Applicant(s) LOLAYEKAR ET AL. | |
| | Examiner Ramsey Refai | Art Unit 2152 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Amendment

Responsive to Request for Continued Examination (RCE) filed April 11, 2006. Claims 1, 15, 20, and 24 have been amended. Claims 1-6 and 8-44 remain pending further examination.

Response to Arguments

1. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Latif et al (U.S. Patent No. 6,400,730) in view of Tzeng (U.S. Patent No. 6,693,906).

4. As per claim 1, Latif et al teach a switch for use in a network, comprising:

a plurality of linecards, each including: a plurality of ports; and a plurality of storage protocol processing units, wherein each storage protocol processing unit is associated with at least one port and performs storage command processing for commands received at said at least one port, thereby distributing processing resources amongst linecard ports (column 2, line 55-column 3, line 21, column 7, lines 46-column 8, line 15).

Latif et al fail to explicitly teach that the switch processes packets without buffering the packets. However, Tzeng teaches a network switch that processes incoming data packets without buffering (column 1, line 39-column 2, lines 16). It would have been obvious to one of the

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ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

5. As per claim 2, Latif et al teach wherein additional linecards can be added to the plurality of linecards (Fig. 5, column 7, lines 25-67).

6. As per claim 3, Latif et al teach wherein linecards can be removed from the plurality of linecards (Fig 5).

7. As per claim 4, Latif et al teach wherein each linecard is designed to handle packets formatted in accordance with any respective one of a plurality of protocols (column 2, lines 15-67).

8. As per claim 5, Latif et al teach wherein: a first set of linecards in the plurality is designed to end and receive packets in accordance with an iSCSI protocol; and a second set of linecards in the plurality is designed to send and receive packets in accordance with a Fibre Channel protocol (column 2, lines 15-67).

9. As per claim 6, Latif et al teach wherein one of the plurality of protocols is Infiniband (column 4, line 16).

10. As per claim 8, Latif et al fail to explicitly teach wherein the switch is capable of processing packets at wire speed. However, Tzeng teaches a network switch that processes incoming data packets without buffering to ensure that switches have switching capabilities for faster speed networks such as 100Mbps or gigabit networks (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so reduce the overall cost of the network switch and enhance switching performance.

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11. As per claim 9, Latif et al teach wherein the switch is capable of receiving a packet at a first port of a first linecard destined for a virtual target and formatted in accordance with a first protocol (column 2, lines 34–column 3, line 22), determining if the packet is a data or control packet (column 7, lines 49–59), and if the packet is a data packet, sending the packet formatted in accordance with a second protocol to a physical target (column 2, lines 34–column 3, line 22). Latif et al fail to explicitly teach it' s all without buffering the packets. However, Tzeng teaches a network switch that processes incoming data packets without buffering (column 1, line 39–column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

12. As per claim 10, Latif et al teach wherein the switch is capable of receiving a packet at a first port of a first linecard destined for a virtual target and formatted in accordance with a first protocol, determining if the packet is a data or control packet, and if the packet is a data packet, sending the packet formatted in accordance with a second protocol to a physical target (column 2, lines 34–column 3, line 22). Latif et al fail to explicitly teach wherein the switch is capable of processing packets at wire speed. However, Tzeng teaches a network switch that processes incoming data packets without buffering to ensure that switches have switching capabilities for faster speed networks such as 100Mbps or gigabit networks (column 1, line 39–column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so reduce the overall cost of the network switch and enhance switching performance.

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13. As per claim 11, Latif et al teach wherein the switch is capable of performing a storage service at the request of a second device without any additional involvement of the second device (column 1, lines 18-35).
14. As per claim 12, Latif et al teach wherein the second device is a server (column 1, lines 18-35).
15. As per claim 13, Latif et al teach wherein the second device is a management station (column 1, lines 18-35).
16. As per claim 14, Latif et al teach wherein the storage service is any one of local mirroring, mirroring over slow link, snapshot, replication, third-party copy, periodic backup, and restore (column 1, lines 25-40).
17. As per claim 15, Latif et al teach a switch for use in a network, comprising: a plurality of linecards, each linecard including: a plurality of ports; a plurality of processing units, wherein each processing unit is associated with at least one port and is associated, with a memory; a CPU in communication with the processing units; and a fabric in communication with each linecard, thereby allowing packets to pass from an ingress linecard to an egress linecard (Fig. 15, column 2, line 55-column 3, line 21, column 7, lines 46-column 8, line 15).

Latif et al fail to explicitly teach that the switch processes packets without buffering the packets. However, Tzeng teaches a network switch that processes incoming data packets without buffering (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant's invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

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18. As per claim 16, Latif et al teach wherein: each processing unit includes a packet aggregation and classification unit and a packet-processing unit; and the associated memory includes a CAM and an SRAM (column 7, line 45-column 8, line 15, Figs, 8, 16-17).

19. As per claim 17, Latif et al teach wherein the associated memory is included in the processing unit (Figs, 8, 16-17).

20. As per claim 18, Latif et al teach wherein the associated memory is associated with each processing unit (Figs, 8, 16-17).

21. As per claim 19, Latif et al teach wherein the switch further includes a traffic manager in communication with each processing unit (column 7, line 45-column 8, line 15).

22. As per claims 20-44, these claims contain similar limitations as claims 1-6, 8-19 above, therefore are rejected under the same rationale.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are cited in the Notice of Reference Cited form (PTO-892).

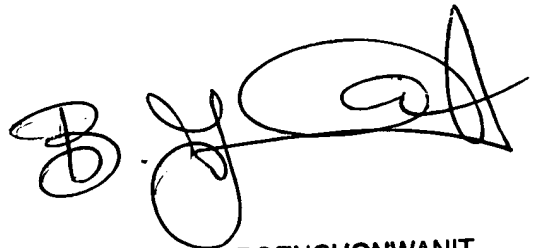
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Refai whose telephone number is (571) 272-3975. The examiner can normally be reached on M-F 8:30 - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramsey Refai
Examiner
Art Unit 2152
July 13, 2006



BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER